

**University of Mumbai**  
**Examination 2021 under cluster 7 (Lead College: SSJCOE)**

Program: **Information Technology**  
Curriculum Scheme: Rev-2012

Examination: BE

Semester VII

Course Code: ITC701

Course Name: Software Project Management

Time: 2 hour

Max. Marks: 80

<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	Which one is not applicable for successful factors for project execution?
Option A:	User involvement
Option B:	Executive management support
Option C:	Lack of user input
Option D:	Clear vision and objective
2.	The newly added project management knowledge area is
Option A:	Time management
Option B:	Quality management
Option C:	Quantity Management
Option D:	Stakeholder management
3.	Payback period is
Option A:	Total Investment/Net cash flow
Option B:	Partial Investment/Net cash flow
Option C:	Total Investment/Cash flow
Option D:	Total budget/Total investment
4.	In which phase, Project charter is delivered?
Option A:	Define
Option B:	Planning
Option C:	Closure
Option D:	Execution
5.	What is expected as the output of scope control process except
Option A:	Change Requests
Option B:	Project document updates
Option C:	Scope changes
Option D:	Work performance measurements
6.	The project management activity which deals with examining the entire project process, methodologies used, budgets and the completion is term as:
Option A:	Project Outsourcing

Option B:	Project budgeting
Option C:	Project Audit
Option D:	Project Contracting
7.	CCPM stands for
Option A:	Critical chain project management
Option B:	Critical chain product management
Option C:	Critical Path Method
Option D:	Critical chain project mechanism
8.	There are 4 activities A,B,C & D with activity time 4, 5,6 & 7 days respectively . Activities B & C has predecessor A. D has predecessor B &C. find the critical path.
Option A:	ABD
Option B:	AB
Option C:	ACD
Option D:	ABCD
9.	An inter-task dependency in which two tasks must finish at the same time is called :
Option A:	Start-to-finish (FS)
Option B:	Finish-to-start (FS)
Option C:	Finish-to-finish (FF)
Option D:	Start-to-start (SS)
10.	Subcontractors, consultants, travel, telephone, computer time, material costs, purchased parts, freight constitute to _____.
Option A:	Direct labor expense
Option B:	Direct nonlabor expense
Option C:	Overhead expense
Option D:	General and administrative expense
11.	Using the LCC model a sensitivity analysis can be performed to show 1) best-case scenarios 2) most-likely scenarios 3) worst-case scenarios
Option A:	Only 1 is correct
Option B:	Only 1 and 3 are correct
Option C:	Only 1 and 2 are correct
Option D:	All 1,2 and 3 are correct
12.	Project team quality implies that each person: 1) Is able and willing to meet those expectations 2) Knows the extent to which he/she meets the expectations 3) Knows Life cycle cost of the project.
Option A:	Only option, a is correct
Option B:	Options, a and c are correct
Option C:	Optios, a and b are correct
Option D:	All options a, b and c are correct
13.	Which of the following is a ground rule for project team building?
Option A:	Perform frequent performance appraisals
Option B:	Ensure that each team member reports to his or her functional manager in addition to

	the project manager
Option C:	Start early
Option D:	Try to solve team political problems
14.	Major difficulties arise when multiple projects need to be managed in the functional organizational structure because of _____.
Option A:	The level of authority of the project manager
Option B:	Conflicts over the relative priorities of different projects in competition for limited resources
Option C:	Project team members who are focused on their functional specialty rather than on the project
Option D:	The need for the project manager to use interpersonal skills to resolve conflicts informally
15.	Which one of the following means that the communication occurs?
Option A:	The transmission of knowledge
Option B:	The outputting of knowledge
Option C:	The presence of knowledge
Option D:	The transfer of knowledge
16.	What is earned value analysis?
Option A:	Technique for analyzing cost and schedule together
Option B:	Form of trend analysis
Option C:	form of status reporting.
Option D:	A method of information distribution.
17.	The basic approaches to analyzing and assessing project risk are _____
Option A:	Qualitative and Quantitative analysis
Option B:	Project and product analysis
Option C:	Process and product analysis
Option D:	Process and prototype analysis
18.	Project risk management provides warning _____.
Option A:	Before implementation
Option B:	After implementation
Option C:	Before and after implementation
Option D:	which is randomly generated either before or after implementation
19.	Which is not phase of Project Procurements ?
Option A:	Selection
Option B:	Specification
Option C:	Contracting
Option D:	Designing
20.	Performed when a project is canceled or ends prematurely. It describes the reasons for cancellation or failure and documents the deliverables that were completed.
Option A:	Starvation
Option B:	Close procurements
Option C:	post-mortem analysis
Option D:	post-project review

<b>Q2 . (20 Marks Each)</b>	<b>Solve any Four out of Six</b>	<b>5 marks each</b>
A	What is project infrastructure?	
B	Why do we need a project charter ?	
C	Why must a project's scope be tied to the WBS?	
D	Differentiate CPM and PERT.	
E	What are the advantages of including milestones in the WBS with respect to time management?	
F	List three main steps that you would like to bring in practice to effectively reduce/control the cost of your project.	

<b>Q3. (20 Marks Each)</b>	<b>Solve any Four out of Six</b>	<b>5 marks each</b>
A	Explain IT project quality plan.	
B	What is the role of PMIS in Project Management?	
C	Explain the three categories of communication.	
D	Explain the fishbone diagram.	
E	Describe procurement processes.	
F	What are the steps involved in terminating the project?	

**University of Mumbai**  
**Examination 2021 under cluster 7 (Lead College:SSJCOE)**

**Examinations Commencing from 15th June 2021**

Program: **Information Technology**

Curriculum Scheme: Rev2016

Examination: BE Semester VII

Course Code: ITC701 and Course Name: Enterprise Network Design

Time: 2 hour

Max. Marks: 80

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<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	Which layer of the Cisco SONA Architecture is responsible for providing Security and identity services.
Option A:	Interactive Services layer
Option B:	Networked Infrastructure layer
Option C:	Transport Layer
Option D:	Application Layer
2.	Organization has implemented Reactive Fault Management system, which is capable of fault detection and correction. Which phase of PPDIOO life cycle is the organization currently in.
Option A:	Prepare
Option B:	Design
Option C:	Optimize
Option D:	Implement
3.	Of the following which is not the benefit of the Top Down Approach of Network Design.
Option A:	Since the Business requirements are gathered from Top Management incorporating the customer organization's business requirements is possible.
Option B:	Selecting the devices and technologies and then identifying the services and applications allow fast deployment of solution to a request by customer.
Option C:	Since the Network Designer is aware of the business goals, technical goals and various constraints– the network designer has the “big picture” of organization while designing the network.
Option D:	Network is designed by considering not only the current but future requirements.
4.	Of the following which is not the service provided by the Internet Connectivity function of the Enterprise Edge Network
Option A:	Internet and the intranet mail services
Option B:	External and Internal Domain Name Service
Option C:	Basic filtering and multilayer connectivity to the Internet through Edge Routers.
Option D:	Terminate dial-in connections and authenticate individual remote users
5.	_____ is the message sent by the SNMP Agent to SNMP Manager when change in the state of a device, a device or component failure

Option A:	Get Request
Option B:	InformRequest
Option C:	Trap
Option D:	Set Request
6.	Of the following at which layer RMON1 can be used for network monitoring.
Option A:	Network Layer
Option B:	Data Link Layer
Option C:	Application Layer
Option D:	Session Layer
7.	Of the following statements which is FALSE
Option A:	Device Redundancy can ensure high – availability but increase the cost of implementation.
Option B:	Business goal and technical goals of the organization play no role in designing the strategy for redundancies.
Option C:	Attachment through a redundant transceiver is a way to improve availability of Server Farm
Option D:	Route redundancy helps to minimize the effect of link failure.
8.	IP Phone Calls is an example of _____ Application.
Option A:	Client–local server
Option B:	Client–Server Farm
Option C:	Peer-Peer
Option D:	Client–Enterprise Edge server
9.	The 80/20 rule for client/server applications says that_____
Option A:	20 percent of the traffic is local to the LAN segment and 80 percent leaves the segment.
Option B:	80 percent of the traffic is local to the LAN segment and 20 percent leaves the segment.
Option C:	80 percent of the traffic is local to the LAN segment and 80 percent leaves the segment.
Option D:	20 percent of the traffic is local to the LAN segment and 20 percent leaves the segment.
10.	Which one of the following supports end-to-end QOS for network Traffic.
Option A:	Integrated Services
Option B:	Bandwidth Optimization
Option C:	Congestion Control Mechanism

Option D:	Best effort Delivery
11.	Which one of the following architecture design support functions of Core and Distribution layers combined in to a single layer for small campus network.
Option A:	Cisco SONA Architectural Framework
Option B:	Collapsed Core Architecture
Option C:	3 layered - Hierarchical network Architecture
Option D:	Non-Collapsed Core Architecture
12.	Asynchronous transfer mode uses _____
Option A:	Packet Switching technology
Option B:	Circuit Switching technology
Option C:	Cell Switching technology
Option D:	Message switching technology
13.	What is IPsec ?
Option A:	A tunnel encapsulation and a security protocol
Option B:	Evasdropping protocol
Option C:	Network Monitoring protocol
Option D:	Mapping IP address to Mac address protocol.
14.	What is the use of Real-Time Transport Protocol?
Option A:	Carry packetized Audio and video traffic over Circuit Switched Network.
Option B:	Carry Network Management information over an IP network.
Option C:	Carry control messages over an cell network.
Option D:	Carry packetized Audio and video traffic over an IP network.
15.	Which are valid ways of writing the following IPv6 address: 3103:0000:256C:0000:0000:08T5:0001:009F?
Option A:	3103:: 256C:0:0: 8T5:1: 9F
Option B:	3103:: 256C:: 08T5:1:009F
Option C:	3103:0: 256C: 8T5:1: 9F
Option D:	3103:0: 256C:: 08T5:1:009F
16.	An enterprise Teleworker gadget or machine will be assigned a _____.
Option A:	Private Address
Option B:	Public Address
Option C:	Private and Public Address
Option D:	Primary Address

17.	_____ is used for address to name resolution
Option A:	DHCP
Option B:	NAT
Option C:	DNS
Option D:	ATN
18.	In class A, the host Id is ----- number of bits
Option A:	16
Option B:	24
Option C:	8
Option D:	10
19.	The _____ interface is defined as the connection between the controller and the applications
Option A:	EastBound API
Option B:	SouthBound API
Option C:	NorthBound API
Option D:	WestBound API
20.	The basic difference between traditional networks and enterprise networks is _____
Option A:	Intelligence
Option B:	Feasibility
Option C:	Throughput
Option D:	Speed

<b>Q2</b> (20 Marks )	
A	<b>Solve any Two</b> <span style="float: right;"><b>5 marks each</b></span>
i.	<i>What are Application Requirements of WAN design.</i>
ii.	<i>What are different types of redundancies that are used in Enterprise Network Design ? Explain any two redundancies in detail.</i>
iii.	<i>Draw and explain the PPDIIO network life cycle.</i>
B	<b>Solve any One</b> <span style="float: right;"><b>10 marks each</b></span>
i.	<i>With reference to the architectural diagram, differentiate between the traditional and SDN network. Also specify the drawbacks of traditional Networks</i>
ii.	<i>With the help of diagram illustrate the deployment of various routing protocols in Enterprise Architecture.</i>

<b>Q3</b> (20 Marks )	
A	<b>Solve any Two</b> <span style="float: right;"><b>5 marks each</b></span>
i.	<i>Write short notes on Open flow in cloud computing</i>

ii.	An organization has mission-critical applications hosted on common servers that are accessible to only top level managers throughout the organization's multiple buildings. Where and how would you recommend that these servers be placed within the network?
iii.	Explain the IPv4 to IPv6 Transition Strategies
<b>B</b>	<b>Solve any One</b> <span style="float: right;"><b>10 marks each</b></span>
i.	Write short note on: Enterprise Branch Design Considerations
ii.	<p>An organization has a computer terminal with the IP address 208.10.10.101 and subnet mask of 255.255.255.240</p> <p>a) Identify which class the IP address belong to and why?</p> <p>b) Calculate how many host machines can be connected in one subnet?</p> <p>c) Calculate the total number of the subnets that can be formed?</p> <p>d) Identify the Subnetwork ID and Broadcast ID for above IP address.</p> <p>e) If the subnet mask is changed to 255.255.255.192 then how many subnets can be formed?</p>

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**Examinations Commencing from 15th June 2021**

**Program: Information Technology**

Curriculum Scheme: Rev2012

Examination: BE Semester VII

Course Code: ITC702 and Course Name: Cloud Computing

Time: 2 hour

Max. Marks: 80

<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	What is the full form of Eucalyptus
Option A:	Elastic utility computing architecture for linking your program to useful system
Option B:	Elastic usability computing architecture for loading your program to useful system
Option C:	Enable utility computing architecture for linking useless program to useful system
Option D:	Efficient utility calculated architecture for linking your program to useful system
2.	The nodes types of eucalyptus are
Option A:	Additive and subtractive
Option B:	Static and dynamic
Option C:	High level and low level
Option D:	Managed, system and static
3.	Utility computing gives
Option A:	Provisioning for urgent work with incentive for users
Option B:	All cloud services
Option C:	All network services
Option D:	Client server combination
4.	Cloud computing components are
Option A:	Different types of clients
Option B:	Grid and utility computing components
Option C:	Client, server, data center and internet
Option D:	All networking devices
5.	Private cloud .....
Option A:	Its size is always larger then the public cloud
Option B:	Has its infrastructure inhouse
Option C:	Is accessible to all the users
Option D:	All its services are on the cloud
6.	What types of issue is caused by creation of multiple copies of data during date transformation
Option A:	Runtime issue
Option B:	Redundancy issue
Option C:	Implementation issue

Option D:	deployment issue
7.	Which of the following port numbers is used to share files and printers on a windows machine
Option A:	50
Option B:	21
Option C:	139
Option D:	23
8.	Which one of the following is not a feature of Cloud Storage Gateways
Option A:	Caching algorithm
Option B:	Data replication process
Option C:	Synchronous snapshots
Option D:	Routing
9.	Which of the following layers comprises cloud servers , storage , load balancers and security devices?
Option A:	Transport layer
Option B:	Compute layer
Option C:	Network layer
Option D:	User Access layer
10.	Which one of the following is a technique used to improve cloud database performance
Option A:	Normalization
Option B:	BCNF
Option C:	Sharding
Option D:	RBAC
11.	Which is not cloud host and data security product available
Option A:	Secure Cloud
Option B:	Deep security
Option C:	OSSEC
Option D:	Internet Explorer
12.	SaaS providers manage and secure all the following except:
Option A:	Infrastructure
Option B:	OS
Option C:	Application Stack
Option D:	Access Controls
13.	In which environment do admins have the most control over cloud app security?
Option A:	PaaS
Option B:	SaaS
Option C:	IaaS
Option D:	CaaS
14.	Simple Cloud, jclouds and Libcloud are all examples of:
Option A:	Vendor-specific cloud APIs
Option B:	Cross-platform APIs

Option C:	IaaS APIs
Option D:	Apache APIs
15.	In which of the following phases requires review of various internal and cloud provider features?
Option A:	Assessment
Option B:	PoC
Option C:	Pilot Migration
Option D:	Testing
16.	Which of the following tool collect and store data, based on the identified atomic units for each type of billable item?
Option A:	Data collection tools
Option B:	Arbitration tool
Option C:	Billing system
Option D:	Capacity analysis tool
17.	Validating a user's identity to permit or reject a login is called -----.
Option A:	Availability
Option B:	Authorization
Option C:	Accounting
Option D:	Authentication
18.	Which of the following protocol is used by AAA servers?
Option A:	TCP
Option B:	RADIUS
Option C:	IP
Option D:	FTP
19.	Which of the following techniques migrate to and host the old application on a PaaS provider's infrastructure?
Option A:	Application Re-hosting
Option B:	Application Re-factoring
Option C:	Application Revision and Optimization
Option D:	Application Re-architecture and re-building
20.	Which layer facilities the clients to store servers and hardware components?
Option A:	Data center
Option B:	IaaS
Option C:	PaaS
Option D:	SaaS

<b>Q2.</b> <b>(20 Marks)</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	Draw and explain the architecture of eucalyptus.	
B	Explain the cloud computing service model with details.	
C	What is full virtualization, para virtualization & VMM ? Explain in detail.	

<b>Q3.</b> <b>(20 Marks)</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	Explain Cloud Service Brokerage (CSB) in detail.	
B	Write detailed Note on Amazon S3 .	
C	Explain the architecture of Mobile Cloud Computing.	

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**University of Mumbai**  
**Examination 2021 under cluster 7 (Lead College: SSJCOE)**

**Examinations Commencing from 15th June 2021**

Program: **INFORMATION TECHNOLOGY**

Curriculum Scheme: Rev2016

Examination: BE Semester VII

Course Code: ITC702 and Course Name: Infrastructure Security

Time: 2 hour

Max. Marks: 80

<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	Which of the following is known as authentication methods types
Option A:	use of tokens
Option B:	use of fingerprints
Option C:	use of passwords
Option D:	use of signature
2.	How to accomplish authorization.
Option A:	Restrict what operations/data the user can access
Option B:	Determine if the user is an attacker
Option C:	Flag the user if he/she misbehaves
Option D:	Determine who the user is
3.	Which malicious code works in background and steals sensitive data?
Option A:	Trojan
Option B:	Virus
Option C:	Worms
Option D:	Shareware
4.	From following which type of rootkit will patch, hook, or replace the version of system call to hide information?
Option A:	Library level rootkits
Option B:	Kernel level rootkits
Option C:	System level rootkits
Option D:	Application level rootkits
5.	In cross-site scripting where does the malicious script execute?
Option A:	On the web server
Option B:	In the user's browser
Option C:	On the attacker's system
Option D:	In the web app model code
6.	Fencing technique refers to-
Option A:	A technique that assigns properties, using several markings, to each memory

	address
Option B:	A technique that used two registers to divide the memory and can be used in a multi-user OS environment
Option C:	A technique in which memory is divided in two parts – one for OS and one for the user
Option D:	A technique which divides physical memory into virtual memory address pages
7.	_____ is a security service in cloud that provides a way for cloud users to monitor how their data is accessed and is critical for compliance enforcement.
Option A:	Secure Data Access
Option B:	Data Confidentiality Assurance
Option C:	Data Integrity Protection
Option D:	Service Audition
8.	Which one of the following is not an approach to limit the damage caused by a successful exploitation for cloud application.
Option A:	Sandboxing
Option B:	Security Information and event monitoring
Option C:	Single Sign On
Option D:	Backup
9.	_____ is designed to work with native applications not just in web browser
Option A:	SAML
Option B:	OAuth
Option C:	Identity Management
Option D:	Managed Security Services.
10.	In GSM Security related information like A3/A8 algorithm are stored on
Option A:	SIM
Option B:	Mobile Data Card
Option C:	Base Station Subsystem
Option D:	Mobile RAM
11.	Which database is used to store A3,A5 & A8 security algorithms in GSM architecture.
Option A:	Authentication Center (AuC)
Option B:	Equipment Identity Register (EIR)
Option C:	Visitor Location Register (VLR)
Option D:	Home Location Register(HLR)
12.	Define Side Channel attack (which is also known as Partitioning attack )
Option A:	Attacker is able to disable the connection between mobile station and the base station subsystem
Option B:	Attacker is able to partition the MSSC
Option C:	Attacker can use a false BTS same as users network and impersonate himself/herself.
Option D:	Attacker is capable of extracting Ki even if he/she has access to SIM for a minute.

13.	_____ manages its elements within the network by communicating with other areas of network .
Option A:	Mobile Switching Centre
Option B:	Serving GPRS Support Node
Option C:	Gateway Mobile Switching Centre
Option D:	Gateway GPRS Support Node
14.	Web server will log which part of a GET request?
Option A:	Hidden tags
Option B:	Query Strings
Option C:	Header
Option D:	Cookies
15.	A Web site that allows users to enter text, such as a comment or a name, and then stores it and later displays it to other users, is potentially vulnerable to a kind of attack called a _____ attack.
Option A:	Two-factor authentication
Option B:	Cross-site request forgery
Option C:	Cross-site scripting
Option D:	Cross-site scoring scripting
16.	The URL of the page that had the link that the user clicked to access the page is called as _____
Option A:	Source
Option B:	Linker
Option C:	Leaker
Option D:	Referrer
17.	At the lower layer of SSL, a protocol for transferring data using a variety of predefined cipher and authentication combinations called the.....
Option A:	SSL handshake protocol
Option B:	SSL authentication protocol
Option C:	SSL record protocol
Option D:	SSL cipher protocol
18.	Controlling access to sensitive electronic information so only those with a legitimate need to access it are allowed to do so is known as?
Option A:	Privacy
Option B:	Ethics
Option C:	IT Security
Option D:	Availability
19.	When cookies are used as session identifiers, how are they then used as a potential security hazard?
Option A:	They emulate user's by downloading all the victims information onto a virtual machine
Option B:	User's cookies are altered to a virus-like state
Option C:	They emulate user's by stealing their personal identity

Option D:	Attackers emulate users by stealing their cookies
20.	Which languages are vulnerable to Cross Site Scripting attacks?
Option A:	C
Option B:	C#
Option C:	Perl
Option D:	VB

<b>Q2</b>	<b>Solve any Four out of Six</b>	<b>5 marks each</b>
A	Explain cross-site scripting attack and the role of Same Origin Policy.	
B	Illustrate VPN and different security protocols used in VPN	
C	Explain mandatory access control policy to achieve confidentiality of the data.	
D	Explain different risk analysis approaches.	
E	Explain Cloud Identity and Access Management	
F	Explain how security is achieved in E-mail using S-MIME protocol.	

<b>Q3.</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	How can SSL protocols encounter the following mention attacks? Replay attack password sniffing in applications.	
B	Illustrate Oauth Authorization flow with example	
C	Explain the restricting access control rules stated in Bell-La-Padula model. Does this model achieve integrity or confidentiality or both, of the data? How?	

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**Examinations Commencing from 15th June 2021**

Program: **Information Technology**

Curriculum Scheme: Rev2012

Examination: BE Semester VII

Course Code: ITC703 and Course Name: Intelligent System

Time: 1 hour

Max. Marks: 80

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Thinking humanly is
Option A:	The laws of thought approach
Option B:	The Turing Test approach
Option C:	The cognitive modelling approach
Option D:	The rational agent approach
Q2.	Which of the following is FALSE?
Option A:	Reflex agents respond immediately to percepts
Option B:	Goal-based agents act so that they will achieve their goal(s)
Option C:	Utility-based agents try to maximize their own "happiness."
Option D:	Learning agent work on condition action rule
Q3.	Taxi driving agent is an example of _____ Environment
Option A:	Episodic
Option B:	Static
Option C:	Deterministic
Option D:	Fully observable
Q4.	What is the space complexity of Iterative deepening search?
Option A:	O(bl)
Option B:	O(bd)
Option C:	O(bm)
Option D:	O(bb)
Q5.	Where does the values of alpha-beta search get updated?
Option A:	Along the path of the search
Option B:	At the beginning of the search
Option C:	At the end of the search
Option D:	At the mid of the search
Q6.	In SELECT-UNASSIGNED-VARIABLE method which of the following is used as a tie breaker for MRV(Minimum Remaining Values) heuristic?
Option A:	Least Constraining Value
Option B:	Degree heuristic
Option C:	Arc consistency
Option D:	Backtracking

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Curriculum Scheme: Rev2012

Examination: BE Semester VII

Q7.	Which search uses the problem specific knowledge beyond the definition of the problem?
Option A:	Informed search
Option B:	Depth-first search
Option C:	Breadth-first search
Option D:	Uninformed search
Q8.	Which search uses only the linear space for searching?
Option A:	Best-first search
Option B:	Recursive best-first search
Option C:	Depth-first search
Option D:	Breadth-first search
Q9.	What is the other name of informed search strategy?
Option A:	Linear search
Option B:	Heuristic search
Option C:	Online search
Option D:	Breadth-first search
Q10.	Which function will select the lowest expansion node at first for evaluation?
Option A:	Greedy best-first search
Option B:	Best-first search
Option C:	Depth-first search
Option D:	None of the mentioned
Q11.	To eliminate the inaccuracy problem in planning problem or partial order planning problem we can use _____ data structure/s.
Option A:	Stacks
Option B:	Queue
Option C:	BST (Binary Search Tree)
Option D:	Planning Graphs
Q12.	What are the two major aspects which combines AI Planning problem?
Option A:	Search & Logic
Option B:	Logic & Knowledge Based Systems
Option C:	FOL & Logic
Option D:	Knowledge Based Systems
Q13.	Forward chaining systems are _____ whereas backward chaining systems are _____
Option A:	Goal-driven, goal-driven
Option B:	Goal-driven, data-driven

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Curriculum Scheme: Rev2012

Examination: BE Semester VII

Option C:	Data-driven, goal-driven
Option D:	Data-driven, data-driven
Q14.	Which of the following is a Planning approach where the actions in the plan can occur without the rule that specific action has to come prior?
Option A:	Partial Order Planning
Option B:	Total Order Planning
Option C:	Planning task
Option D:	None of the given choices
Q15.	_____ search belongs to totally ordered plan search
Option A:	Forward state-space search
Option B:	Hill-climbing
Option C:	Best first search
Option D:	Depth-first search
Q16.	In probability theory, the set of all sample worlds is called?
Option A:	Sample Space
Option B:	Sample Worlds
Option C:	Sample Distribution
Option D:	Sample Certainty Space
Q17.	..... not the commonly used programming language for AI?
Option A:	PROLOG
Option B:	Perl
Option C:	Java
Option D:	LISP
Q18.	The DECISION-TREE-LEARNING algorithm adopts:
Option A:	Divide and conquer strategy
Option B:	Dynamic programming
Option C:	Greedy Algorithm
Option D:	Brute force
Q19.	What is Machine learning?
Option A:	The autonomous acquisition of knowledge through the use of manual programs
Option B:	The selective acquisition of knowledge through the use of computer programs
Option C:	The autonomous acquisition of knowledge through the use of computer programs
Option D:	The selective acquisition of knowledge through the use of manual programs
Q20.	In which of the following methods, an expert is asked to verbalize his thought process while solving a problem or making a decision?

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Option A:	Protocol analysis
Option B:	Repertory Grid Analysis
Option C:	Knowledge discovery
Option D:	Observations

Q2	A	Answer Any Two	Marks
	I	Compare the rational agent approach with the Turing Test approach.	05
	II	"THIS + IS = HERE" Solve this Cryptarithmic Puzzle.	05
	III	Briefly describe the breadth-first and the depth-first search for trees.	05
	B	Answer Any One	
	I	Explain working of Utility and Learning Agent	10
	II	Find the solution using Min-Max and Alpha Beta Pruning	10
Q3	A	Answer Any Two	Marks
	I	Explain the architecture of a knowledge based agent.	05
	II	Explain Conditional Probability.	05

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	III	Explain Decision Trees	05
	B	Answer Any One	
	I	What is partial ordered planning? Give example.	10
	II	What is Bay's theorem and Belief Network?	10

**University of Mumbai**  
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**Examinations Commencing from 15th June 2021**

Program: **Information Technology**

Curriculum Scheme: Rev2016

Examination: BE Semester VII

Course Code: ITC703 and Course Name: Artificial Intelligence

Time: 2 hour

Max. Marks: 80

<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	Which of the following is not covered by AI?
Option A:	Linguistic
Option B:	Economics
Option C:	Philosophy
Option D:	Nature Drawing
2.	--- is a decision making strategy which seeks for ample solution rather than most favorable results.
Option A:	Satisficing
Option B:	Augmented intelligence
Option C:	Optimizing
Option D:	Pruning
3.	Which of the following sentence/s is/are true? I Rational agent not only do the said task but also learn from its percept history. II Rational agent thinks logically III Rational agent acts only based what he perceives.
Option A:	Only I
Option B:	I and II
Option C:	II and III
Option D:	Only II
4.	Consider an example of ALEXA, what kind of environment it required to perform well.
Option A:	Fully Observable, Deterministic, Episodic, Dynamic, Discrete
Option B:	Partially Observable, Stochastic, Episodic, Dynamic, Discrete
Option C:	Partially Observable, Stochastic, Sequential, Dynamic, Continuous
Option D:	Partially Observable, Stochastic, Sequential, Dynamic, Discrete
5.	For a Simulated annealing algorithm, for a very high value of T, the algorithm behaves like ---- and as T becomes 0, the behavior move towards ----
Option A:	Random Walk, Hill Climbing
Option B:	Hill Climbing, Random Walk
Option C:	DFS, Random Walk
Option D:	Tabu Search, Random Walk

6.	What is MINIMAX value of a game tree of Tic-Tac-Toe
Option A:	Win
Option B:	Draw
Option C:	Loose
Option D:	Withdraw
7.	Which statement is true: I- A* is complete and admissible II- A* search algorithm's time complexity is more than DFS III- A* search algorithm's time and space complexity depends on heuristic function
Option A:	I and II
Option B:	II and III
Option C:	I and III
Option D:	Only I
8.	Which of the following is the important property of CSP?
Option A:	Commutative
Option B:	Constraint propagation
Option C:	Forward checking
Option D:	Incremental
9.	Every rat has a tail, can be represented as
Option A:	$\exists x \text{ has}(x, \text{tail})$
Option B:	$\forall x \text{ has}(x, \text{tail})$
Option C:	$\exists x \text{ rat}(x) \rightarrow \text{has}(x, \text{tail})$
Option D:	$\forall x \text{ rat}(x) \rightarrow \text{has}(x, \text{tail})$
10.	The symbolization of a bidirectional implication is
Option A:	$p \rightarrow q$
Option B:	$p \& q$
Option C:	$p \vee q$
Option D:	$p \leftrightarrow q$
11.	Which of the following is not a type of plan?
Option A:	Partial order
Option B:	Conditional
Option C:	Unconditional
Option D:	Hierarchical
12.	Which of the following is a feature of quantifiers?
Option A:	Universal quantifier is used to get exact number of entities.
Option B:	Neither Existential quantifier nor Universal quantifier give exact number of entities.
Option C:	Existential quantifier is negation of zero.
Option D:	Existential quantifier implies half the number of entities.
13.	For Air cargo transport problem, the precondition for Unload(x,y, Mumbai) is
Option A:	Load(x,y, Mumbai) and Fly(y, Mumbai, Mumbai)
Option B:	Load(x,y, Pune) and Fly(y, Pune, Mumbai)

Option C:	Load(y,x, Pune) and Fly(z, Pune, Mumbai)
Option D:	Load(y,x, Mumbai) and Fly(z, Mumbai, Mumbai)
14.	Plan for making lunch which includes Roti, Dal and Rice is
Option A:	Only Total order
Option B:	Only Partial order
Option C:	Combination of all types
Option D:	Only conditional
15.	Probabilities express _____
Option A:	the agent's inability to reach a definite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option B:	the agent's ability to reach a definite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option C:	the agent's inability to reach an indefinite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option D:	the agent's ability to reach an indefinite communication regarding the truth of a sentence, and summarize the agent's beliefs.
16.	BELIEF NETWORK represents _____
Option A:	Relation between outcomes
Option B:	the dependence between variables
Option C:	the dependence between outcomes
Option D:	Collection of outcomes
17.	Which of the following is an application of NLP
Option A:	Document clustering
Option B:	Map coloring
Option C:	OLTP Transaction
Option D:	Resource allocation
18.	Which of the following is a Natural Language Processing stage?
Option A:	Query optimization
Option B:	Crypt Arithmetic
Option C:	Datatype casting
Option D:	Pragmatic analysis
19.	Which of the following concepts make a system cognitive?
Option A:	Random learning
Option B:	Continuous learning from data across time
Option C:	Data cleaning
Option D:	Data extraction
20.	What types of problems are solved by supervised learning?
Option A:	Descriptive analysis problem
Option B:	Grouping of similar items
Option C:	Classification or regression problems
Option D:	Quantification

<b>Q2.</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	What do you mean by Uninformed, Informed and Local Search Algorithms? Discuss the OPEN and CLOSED List as the algorithm DFS and BFS progresses.	
B	1. Convert the following to predicates: <span style="float: right;"><b>6 marks</b></span> a. Bina makes tea if she has honey otherwise makes coffee. b. Coffee is a bitter drink. c. Bina has honey.	
	2. Will Bina make a bitter drink? Use backward reasoning. <span style="float: right;"><b>4 marks</b></span>	
C	Explain different components of Natural Language processing? Also, explain different levels of knowledge used in language understanding?	

<b>Q3.</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	What is Constraint Satisfaction Problem? What would be the constraints for the crypto arithmetic problem described in below figure. Solve it. $\begin{array}{r} \text{FOVE} \\ + \text{XEVEN} \\ + \text{FOVE} \\ \hline \text{MAOKU} \end{array}$	
B	Plan and explain spare tire changing.	
C	Explain inferencing in Belief network with example.	